WHAT IS CLAIMED IS:

1. A compound having the structure MgX^1X^2, wherein X^1 is parecoxib anion and X^2 is selected from the group consisting of parecoxib anion, chloride, bromide, sulfate, phosphate, nitrate, acetate, propionate, succinate, glycolate, stearate, lactate, malate, tartrate, citrate, ascorbate, glutamate, benzoate, salicylate, methanesulfonate, and toluenesulfonate.

2. The compound of Claim 1 substantially in the form of magnesium diparecoxib.

3. The compound of Claim 2 wherein the molar ratio of parecoxib anion to Mg^{2+} is at least about 1.5 and equal to or less than about 2.5.

4. The compound of Claim 3 in the form of a crystal.

5. The compound of Claim 4 wherein the crystals have an average particle size of less than about 20 μm as determined by a Horiba Particle Sizer.

6. The compound of Claim 4 wherein the crystal has a surface to volume ratio less than about 12 μm^{-1}.

7. A compound having the structure $MX^1(X^2)_n$ wherein:

M is a metal cation selected from the group consisting of Ca^{2+}, Zn^{2+}, and K^+;

X^1 is parecoxib anion;

X^2 is selected from the group consisting of parecoxib anion and another pharmaceutically acceptable anion; and

n is 0 when M is K^+ and n is 1 when M is Ca^{2+} or Zn^{2+}.

8. A pharmaceutical composition comprising the compound of Claim 3 or Claim 7 and at least one excipient.

9. The composition of Claim 8 wherein the excipient comprises at least one

agent selected from the group consisting of an anti-oxidant, a preservative, and a moldable agent.

10. The composition of Claim 8 comprising magnesium diparecoxib in an amount at least about 20% by weight of the total dosage form.

11. The composition of Claim 8 in a form selected from the group consisting of a pill, a tablet, a capsule, a solution, and a suspension.

12. The composition of Claim 8 suitable for injection into at least one parenteral site selected from the group of sites consisting of intradermal, intramuscular, intraarticular, intraperitoneal, intralymphoid, subcutaneous, and subdural.

13. The composition of Claim 8 wherein, upon injection into the at least one parenteral site, the dosage form provides at least one of:

(a) a therapeutic level of valdecoxib within about 5 hours after injection;

(b) a therapeutic level of valdecoxib for at least about 3 days after injection; and/or

(c) a time to reach one half maximum blood serum concentration of valdecoxib not greater than about 10 hours after injection.

14. A method for providing a long-acting selective COX-2 inhibitory effect comprising injecting into a subject an amount of the composition of Claim 8 sufficient to produce said long acting selective COX-2 inhibitory effect.